

British Columbia Ministry of Health Services and the General Practice Services Committee

Evaluation of the Full Service Family Practice Incentive Program and the Practice Support Program

**Final Report on The Relationship Between Billing
for Incentive Payments and Majority Source of
Care Patients per GP: Fiscal 2009/10**

Prepared by

**Marcus J. Hollander, PhD
Angela Tessaro, BA**

June 2011

This report has been prepared by Hollander Analytical Services Ltd. for the project funder the BC General Practice Services Committee. The authors are solely responsible for the content of the report. The opinions expressed are those of the authors and do not necessarily reflect the views or policies of the GPSC, the BC Ministry of Health Services or the British Columbia Medical Association.



**Hollander Analytical Services Ltd.
300 – 895 Fort Street
Victoria, BC, V8W 1H7**

**Tel: (250) 384-2776
Fax: (250) 389-0105
info@hollanderanalytical.com**

HIGHLIGHTS OF FINDINGS

- This report looks at the impact of billing for incentives on attachment to practice using MSOC.
- Do the GPs who bill for more incentive payments increase the number and proportion of attached patients and, thus, reduce costs as more highly attached patients cost less?
- If the above happens, the logic is as follows:
 - Incentives facilitate the provision of more optimal care.
 - By receiving better care, patients are less likely to go to other providers and more likely to obtain an increasing proportion of their care from their main physician.
 - By obtaining more of their care from their main physician, patients are more likely to have the majority of their care provided by their main GP.
- We studied 3,565 GPs who had billed for incentives for fiscal 05/06 to 09/10. Total billings for each GP were calculated and then GPs were categorized into quartiles in regard to the extent they billed for incentives.
- For the lowest quartiles of billers, MSOC patients went from 161.9 to 140.9, indicating a decrease in attachment as measured by the number of MSOC patients in a practice. In contrast, for the highest quartiles of billers, MSOC patients increased from an average of 705.2 in fiscal 2005 to 762.0 in 2009.
- The more years a GP had billed for incentives also had an impact on their number of MSOC patients. GPs who had billed incentives for one year had an average of 194.2 MSOC patients, while those who had billed for incentives for five years had 554.5 MSOC patients.
- In terms of percentages of MSOC patients, the percentage for the lowest quartile of billers decreased from 10.0% in 2005 to 8.8% in 2009. In contrast, the respective percentages for the highest quartile of billers increased from 37.1% to 41.7%.
- The same patterns as noted above pertained even more strongly for higher care needs patients (CDM or complex care). The percentage of MSOC patients for the lowest quartile of billers went from 12.3% in fiscal 05/06 to 10.5% in fiscal 09/10. The corresponding figure for the highest quartile of billers went from 50.3% to 56.0%.
- The same patterns as noted above pertained for “regular” GPs (those with at least 50 MSOC patients) and for 3 and 7 year time periods.
- The conclusion is that it appears that there is an interaction effect between billing for incentives and attachment to practice such that GPs who bill for larger numbers of incentives increase their overall attachment rate. Higher attachment, in turn, is correlated with lower costs. Thus, it appears that continuity of care is related to cost avoidance.

TABLE OF CONTENTS

Highlights of Findings	i
1. Introduction	1
2. Methods and Data Selection	1
3. Findings For All GPs	2
4. Findings for “Regular” GPs.....	4
5. Sensitivity Analysis	6
6. Conclusions	8

1. INTRODUCTION

The General Practice Services Committee (GPSC) has contracted with Hollander Analytical Services Ltd. to conduct an evaluation of incentive payments instituted under the Full Service Family Practice Incentive Program (FSFPIP). As part of the project to evaluate the FSFPIP, a range of analyses have been conducted on administrative health data.

This report provides an analysis of the changes over time in the number and percentage of clients for whom a GP is the Majority Source of Care (MSOC). This analysis is designed to supplement other work conducted for the GPSC evaluation of the FSFPIP which shows that there is an inverse relationship between the attachment to a practice, or a practitioner, and costs, for higher care needs patients. Thus, higher care needs patients, with a higher level of attachment to their GP, tend to have lower costs.

The above finding is of importance to the GPSC as it indicates that good quality family practice, in which GPs have a regular clientele, actually reduces costs to the health care system. Thus, one implication of this finding is that efforts to increase the level of attachment, or continuity of provider, could provide value-for-money for our health care system.

Given the above, a related question is whether or not incentive payments can lead to greater attachment. The logic chain is as follows:

- Incentives facilitate the provision of more optimal care.
- By receiving better care, patients are less likely to go to other providers and more likely to obtain an increasing proportion of their care from their main physician.
- By obtaining more of their care from their main physician, patients are more likely to have the majority of their care provided by their main GP.

Thus, is there any evidence to indicate that the proportion of patients, for whom a given GP is the Majority Source of Care, increases, or increases at a greater rate, for GPs who bill for more incentives than for GPs who bill for fewer incentives? This question is addressed in this report.

2. METHODS AND DATA SELECTION

In the tables which follow, we show the number and percent of people for whom their GP is the Majority Source of Care over time. The GPs in the analysis are GPs who practiced in BC for all five years from fiscal 2005/06 to fiscal 2009/10. The number of incentive billings for each GP, over the five year period, was calculated. The GPs were then grouped into quartiles from GPs with the lowest 25% of incentive billings to the 25% with the highest number of incentive billings. Separate analyses were also conducted in regard to the number of years GPs had billed for incentive payments (from 0 years to 5 years). We also studied people who were on the registries for diabetes and congestive heart failure, and were complex care related patients (i.e., they were on at least two of the seven registries and/or had billings for at least two of the targeted conditions for complex care). This latter group, called Selected Patients, was quite important because they were the types of patients for whom the incentives were designed. In addition, they were higher care needs patients so the inflow and outflow from a GP's practice of relatively healthy patients would have less of an impact on the majority source of care calculations.

3. FINDINGS FOR ALL GPs

Table 1 presents the number of GPs and the average number of incentive billings per year for all patients in the province in fiscal 2009/10. As can be seen, there were 3,565 GPs who had billed incentives. Also, the longer the period of time GPs billed incentives, the larger the number of incentives which they billed. The significant increase in billings is primarily due to the fact that a number of new incentive payments were initiated in the past three years. Table 2 compares the changes over time in the number of patients for whom their GP was the Majority Source of Care across the four quartiles. As can be seen in Table 2, the number of patients for whom the GP was the Majority Source of Care, for the two lowest quartiles, for ALL patients, decreased. For example, the number in the lowest quartile went from 161.9 to 140.9. In contrast, the number increased for the top two quartiles. For example, for the top quartile the average number of patients for whom the GP was the Majority Source of Care increased from 705.2 to 762.0. It should be noted that MSOC data for all patients was obtained from the Practitioner Profiles data set. This data set is calculated on a calendar year basis. The MSOC data for SELECTED patients was specifically calculated for this report and is based on the fiscal year.

Table 1: MSOC Patients Over Time Based on Care Provided to All Patients

	All									
	# of GPs					Average Number of Incentives				
	200506	200607	200708	200809	200910	200506	200607	200708	200809	200910
All	3,565	3,565	3,565	3,565	3,565	27.2	89.6	188.4	189.6	202.7
Quartile										
1	890	890	890	890	890	2.4	2.8	3.4	2.9	3.6
2	892	892	892	892	892	13.5	35.0	71.8	70.5	77.9
3	890	890	890	890	890	28.8	88.0	195.2	205.1	217.9
4	893	893	893	893	893	64.1	232.1	482.3	479.1	510.5
No of Years Using Incentives										
0	406	406	406	406	406	0.0	0.0	0.0	0.0	0.0
1	143	143	143	143	143	2.6	2.4	1.1	0.2	5.8
2	134	134	134	134	134	5.5	10.3	8.5	19.4	21.7
3	216	216	216	216	216	6.3	17.3	67.4	68.7	73.9
4	409	409	409	409	409	6.9	42.5	122.9	126.4	138.3
5	2,257	2,257	2,257	2,257	2,257	40.7	131.3	268.2	268.8	286.3

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 2: MSOC Patients Over Time Based on Care Provided to Patients

	Averages									
	Majority Source of Care ALL Patients					Majority Source of Care SELECTED Patients				
	2005	2006	2007	2008	2009	200506	200607	200708	200809	200910
All	421.5	433.1	439.4	441.2	440.7	74.1	79.1	87.9	93.6	96.9
Quartile										
1	161.9	147.4	140.5	142.6	140.9	22.4	20.4	19.1	21.2	22.2
2	353.5	358.4	358.3	348.8	345.4	53.9	55.8	56.5	59.4	60.7
3	464.7	490.3	501.6	509.4	513.6	79.6	86.5	95.1	102.6	106.3
4	705.2	735.4	756.3	763.1	762.0	140.2	153.5	180.6	191.1	197.9
No of Years Using Incentives										
0	98.8	96.1	91.3	91.0	89.2	13.0	12.9	11.8	13.3	14.0
1	222.6	188.2	179.9	191.9	194.2	30.6	26.7	25.1	28.8	32.5
2	277.8	259.1	239.6	226.3	222.4	41.8	35.5	31.8	32.8	35.2
3	337.9	329.6	325.7	326.6	325.8	55.0	54.4	57.1	60.1	60.3
4	356.9	368.5	393.0	390.9	379.7	58.9	65.2	73.2	78.1	80.5
5	520.4	541.1	549.6	552.8	554.5	94.3	101.8	114.5	121.8	126.0

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

The findings are even more striking when one considers patients with higher care needs. The number of Selected Patients for whom the GP was the Majority Source of Care increased from 79.6 to 106.3 for the third quartile and from 140.2 to 197.9 for the fourth quartile. Those in the lowest quartile remained relatively constant at 22 or less. These are significant changes and appear to indicate a clear increase in the number of patients for whom a GP is the Majority Source of Care, for heavier care needs patients.

It is difficult to control for all of the factors which can potentially have an impact on a practice, such as the relative proportions of people who enter or leave the practice, changes in the overall number of patients in a practice, changes in the number of hours worked over a year by the GP, and so on. One way to at least partially control for such factors is to look at the percentage change over time in regard to the percentage of a practice that was comprised of MSOC patients.

Table 3 presents this percentage based data for all patients and for selected patients. As can be seen, the percentage for patients for GPs in the bottom quartile went from 10.0% to 8.8% from 2005 to 2009. In contrast, for the GPs in the highest quartile of those billing for incentives, the percentage of people for whom the GP was the majority source of care rose from 37.1% to 41.7% over the same period. For selected patients, the percentage for the lowest quartile decreased from 12.3% to 10.5%, while for GPs in the highest quartile, the percentage increased from 50.3% to 56.0%. However, the rate of increase appears to have slowed over the past two years.

Table 3: Percentage of Practice Patients for Whom the GP was the Majority Source of Care: All Patients and Selected Patients

	Average Patients per GP									
	% Majority Source of Care ALL Patients					% Majority Source of Care SELECTED Patients				
	2005	2006	2007	2008	2009	2005/06	2006/07	2007/08	2008/09	2009/10
All	24.7	25.6	25.9	26.3	26.5	32.5	32.8	34.2	34.3	34.3
Quartile										
1	10.0	9.4	8.8	8.9	8.8	12.3	11.1	10.5	10.7	10.5
2	23.1	23.9	24.1	23.9	23.6	29.7	29.6	30.0	29.8	29.4
3	28.4	30.0	30.6	31.2	31.8	37.5	38.8	40.9	41.4	41.4
4	37.1	38.9	40.1	41.1	41.7	50.3	51.7	55.5	55.2	56.0

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

4. FINDINGS FOR “REGULAR” GPs

A second, parallel, analysis was also conducted. This analysis focused on what could be considered to be “regular” family physicians. There is no perfect way to define who is a “regular” GP. For purposes of this analysis we defined a “regular” GP as a GP who was the Majority Source of Care GP for at least 50 patients. For the tables which follow the GP had to be the Majority Source of Care for at least 50 patients in each year. Table 4 presents data on the number of selected GPs and the incentives billed.

Table 5 presents a parallel analysis to that provided in Table 2. For the top quartile of regular GPs, the number of patient for whom they were the Majority Source of Care increased from 757.5 to 809.0, while for the bottom quartile the number of MSOC patients was relatively constant. For “Selected Patients” the comparable increase was from 153.5 in fiscal 2005/06 to 216.3 in fiscal 2009/10. There was also a modest, but much lower increase from 57.7 to 68.4 for GPs in the lowest quartile.

Again, a parallel analysis was conducted in regard to the percentage of clients for whom the GP was the majority source of care. This was done to see if the results in the prior analysis (see Table 3) were simply an artifact of differences between “regular” and non-regular GPs. Table 6 indicates that, while somewhat more modest, the pattern for GPs in the top quartile continued to hold. For example, the percentage of MSOC patients for the GPs in the lowest quartile held relatively steady from 24.5% to 25.2% from 2005 to 2009 while the percentage for high incentive billers increased from 39.0% to 43.3%. For Selected patients, the corresponding figures were 30.6% to 30.3%, for the lowest quartile and 53.0% to 58.1% for the highest quartile.

Table 4: MSOC Patients Over Time Based on Care Provided to All Patients for Regular GPs

	All					Average Number of Incentives				
	# of GPs									
	200506	200607	200708	200809	200910	200506	200607	200708	200809	200910
All	2,586	2,586	2,586	2,586	2,586	34.7	115.8	243.4	246.1	263.6
Quartile										
1	643	643	643	643	643	7.6	17.6	35.5	35.4	41.1
2	648	648	648	648	648	20.6	59.7	133.4	141.5	153.4
3	647	647	647	647	647	38.1	124.6	266.4	270.4	284.7
4	648	648	648	648	648	72.1	260.4	536.6	535.5	573.4
No of Years Using Incentives										
0	72	72	72	72	72	0.0	0.0	0.0	0.0	0.0
1	43	43	43	43	43	1.8	6.0	0.8	0.3	16.2
2	50	50	50	50	50	2.2	4.6	11.7	38.8	43.7
3	113	113	113	113	113	2.9	9.3	82.5	88.9	91.9
4	242	242	242	242	242	5.8	48.4	145.9	152.2	172.2
5	2,066	2,066	2,066	2,066	2,066	42.5	138.5	282.7	284.4	303.3

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 5: MSOC Patients Over Time Based on Care Provided to All Patients for Regular GPs

	Averages									
	Majority Source of Care ALL Patients					Majority Source of Care SELECTED Patients				
	2005	2006	2007	2008	2009	200506	200607	200708	200809	200910
All	540.9	558.4	567.7	572.0	573.2	95.0	102.3	114.0	122.3	126.6
Quartile										
1	409.0	411.7	413.1	412.6	412.0	57.7	60.3	60.5	66.2	68.4
2	437.9	454.6	463.7	470.2	469.4	67.9	73.1	78.1	85.5	88.0
3	558.4	583.3	592.4	597.6	601.3	100.7	108.3	120.0	129.4	133.2
4	757.5	783.1	800.5	806.3	809.0	153.5	167.1	197.2	207.8	216.3
No of Years Using Incentives										
0	422.9	426.7	423.8	414.5	399.3	54.1	55.2	52.6	57.7	60.1
1	530.1	524.4	514.4	544.0	555.9	68.4	71.0	69.9	80.1	88.4
2	511.4	535.5	545.2	526.4	520.7	70.8	73.8	71.2	74.2	80.1
3	485.3	498.6	506.5	521.6	517.0	74.9	80.5	86.8	96.1	95.2
4	502.3	513.5	529.7	527.2	527.2	82.5	90.3	98.4	107.0	111.4
5	553.6	572.8	582.2	587.2	589.4	100.1	107.9	121.4	129.9	134.3

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 6: Patients Over Time Based on Care Provided to All Patients for Regular GPs

	Average Patients per GP									
	% Majority Source of Care ALL Patients					% Majority Source of Care SELECTED Patients				
	2005	2006	2007	2008	2009	2005/06	2006/07	2007/08	2008/09	2009/10
All	31.0	32.2	32.8	33.4	33.8	40.8	41.6	43.4	43.8	43.9
Quartile										
1	24.5	24.8	24.9	25.2	25.2	30.6	30.4	30.5	31.0	30.3
2	28.1	29.5	30.0	30.6	30.5	36.4	37.3	38.5	39.4	39.3
3	32.3	34.0	34.7	35.5	36.2	43.3	44.6	47.0	47.6	47.8
4	39.0	40.5	41.5	42.3	43.3	53.0	53.9	57.6	57.2	58.1

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

5. SENSITIVITY ANALYSIS

As noted previously, the data presented above related to an analysis in which one considers GPs over a five year period. Do the results differ if one creates the quartiles over the full seven years incentives have been available, or the most recent three years. Tables 7 and 8 present data using the full seven year period for all GPs and regular GPs. Tables 9 and 10 presents the same data for a three year period. As can be seen, there seems to have been a plateauing effect in the last two years (for the 7 and 3 years analysis) for SELECTED patients. However, there continued to be a modest increase for all patients in the three, five and seven years analyses, for all GPs who billed an incentive and for the 50+ MSOC GPs.

Table 7: MSOC Patients Over Time Based on Care Provided to All Patients From 2003 to 2009

	Averages													
	% Majority Source of Care ALL Patients							% Majority Source of Care SELECTED Patients						
	2003	2004	2005	2006	2007	2008	2009	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10
All	26.0	26.5	26.6	27.0	27.1	27.3	27.4	33.8	34.2	34.9	34.8	35.9	35.7	35.6
Quartile														
1	13.2	12.9	11.9	11.3	10.7	10.6	10.3	16.5	16.4	14.9	13.5	12.8	12.7	12.4
2	24.3	24.7	25.1	25.2	25.2	24.8	24.3	30.8	31.0	32.1	31.4	31.6	31.1	30.3
3	29.6	30.5	31.0	31.9	32.1	32.5	33.1	38.4	39.1	40.9	41.3	42.9	43.2	43.4
4	37.0	37.9	38.3	39.6	40.5	41.2	41.9	49.4	50.4	51.9	52.8	56.2	55.6	56.2

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 8: MSOC Patients Over Time Based on Care Provided to All Patients for Regular GPs From 2003 to 2009

	Averages													
	% Majority Source of Care ALL Patients							% Majority Source of Care SELECTED Patients						
	2003	2004	2005	2006	2007	2008	2009	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10
All	31.8	32.3	32.5	33.2	33.6	34.2	34.5	41.4	41.7	42.9	43.1	44.8	45.0	44.9
Quartile														
1	25.7	26.5	26.4	26.5	26.4	26.6	26.4	32.7	32.8	33.3	32.9	32.6	33.2	32.2
2	29.1	29.5	29.7	30.4	30.8	31.2	31.0	37.5	37.5	38.5	38.9	39.8	40.4	39.9
3	33.1	33.5	33.6	35.0	35.5	36.2	37.0	43.2	43.5	45.2	46.2	48.2	48.8	49.0
4	39.1	39.9	40.1	41.0	41.8	42.6	43.5	52.3	53.0	54.3	54.6	58.3	57.7	58.6

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 9: MSOC Patients Over Time Based on Care Provided to All Patients From 2007 to 2009

	Averages					
	% Majority Source of Care ALL Patients			% Majority Source of Care SELECTED Patients		
	2007	2008	2009	2007/08	2008/09	2009/10
All	23.7	24.6	25.1	31.3	32.0	32.3
Quartile						
1	7.0	6.9	7.0	8.2	8.3	8.4
2	20.2	20.6	21.0	25.3	25.6	25.6
3	28.9	30.7	31.1	38.4	40.1	40.2
4	38.6	40.2	41.2	53.3	54.1	55.0

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 10: MSOC Patients Over Time Based on Care Provided to All Patients for Regular GPs From 2007 to 2009

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

	Averages					
	% Majority Source of Care ALL Patients			% Majority Source of Care SELECTED Patients		
	2007	2008	2009	2007/08	2008/09	2009/10
All	30.9	32.1	32.7	40.9	41.9	42.2
Quartile						
1	22.2	22.8	23.2	26.8	27.8	27.8
2	28.3	29.5	29.6	36.3	37.8	37.3
3	32.6	34.1	35.1	44.1	45.7	46.3
4	40.6	42.0	43.0	56.3	56.5	57.5

6. CONCLUSIONS

The analyses in this report seem to indicate that, for GPs who are high billers of incentives, the number, and percentage, of patients for whom they are the Majority Source of Care has increased over time. Thus, we now have evidence to indicate that continuity of provider results in lower costs per patient, and that incentive payments appear to increase the continuity of provider. That is, high billers of incentives have an increasing number of patients for whom they are the main care provider.